

Introduction to Operation Theatre Safety

Introduction to Operation Theatre (OT) Safety Precautions

Designed as a quick-reference guide for students, new staff, and anyone involved in surgical care.

1. Why OT Safety Matters

Reason	Impact if Ignored
Patient protection	Surgical site infection, wrong-site surgery, anesthesia complications
Staff health	Exposure to blood-borne pathogens, chemical burns, musculoskeletal injuries
Legal & ethical	Liability, loss of accreditation, breach of patient rights
Operational efficiency	Delays, equipment failure, increased cost

2. Core Safety Domains

Domain	Key Elements	Typical Checks
Environmental safety	Air quality, temperature, humidity, lighting, noise	• Verify HVAC filters • Check temperature (20-24°C) & humidity (30-60%) • Ensure adequate illumination (> 100 lux)
Fire safety	Ignition sources, fire suppression systems, evacuation plan	• No open flames; use electrosurgical units (ESU) at lowest effective power • Verify fire extinguisher type & location • Conduct quarterly fire drills
Electrical safety	Grounded equipment, circuit protection, backup power	• Inspect cords for damage • Use only OT-rated outlets (ground-fault circuit interrupters) • Test emergency generator load

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Domain

Key Elements

Typical Checks

Precautions

		• Perform WHO "5 Moments" hand hygiene
Sterile field integrity	Hand hygiene, gowning, instrument handling	• Follow dress code: cap, mask, sterile gown, gloves • Use sterile trays, avoid cross-contamination • Verify lead aprons, thyroid shields
Radiation safety (if applicable)	Shielding, dosimetry, equipment checks	• Record staff dose on personal dosimeters • Perform X-ray tube warm-up & QA • Use EPA-approved disinfectants, follow contact time
Chemical & waste safety	Disinfectants, anesthetic gases, sharps	• Scavenge anesthetic gases; monitor scavenger efficiency • Dispose of sharps in puncture-proof containers • Adjust table to surgeon's eye level
Ergonomics & manual handling	Table height, positioning, equipment layout	• Use slide boards, lift assists for heavy trays • Rotate staff duties to reduce repetitive strain

3. Pre-Operative Safety Checklist (Before "First Cut")

1. Team Briefing

- Confirm patient identity, procedure, site, and consent.
- Review allergies, comorbidities, and special equipment needs.

2. Equipment Verification

- Check functionality of anesthesia machine, monitors, ESU, suction, and lighting.
- Ensure all required instruments are present, inspected, and sterilized.

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3. Environmental Confirmation

Precautions

- Verify OT temperature, humidity, and airflow (laminar flow if required).
- Confirm fire safety devices are in place and unobstructed.

4. Medication & Drug Safety

- Double-check drug labels, expiration dates, and dosage calculations.
- Store controlled substances in locked cabinets; document access.

5. Patient Positioning & Protection

- Apply padding to pressure points, secure limbs, and check alignment.
- Place warming devices (e.g., forced-air blankets) if needed to prevent hypothermia.

4. Intra-Operative Safety Practices

| Practice | How to Perform | Frequency